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Jun 15, 1999

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TITLE: Anticancer immunoactive polysaccharide separated from
Phellinus linteus and process of making it - NoAbstract

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KR 197446 B1	June 15, 1999		000	C12P019/04
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NOABSTRACT

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페리누스 린테우스 (Phellinus linteus)로부터 분리된 항암 면역활성 다당류 및 이의 제조 방법

정의

본 발명은 페리누스, 린테우스 KCTC 0173BP의 균사체로부터 분리된 분자량 9,000 내지 16,000, 또는 153,000 단위의 항암 면역활성 다당류, 상기 균주의 균사체로부터 얻은 추출, 에탄올 추출 및 음이온 교환 크로마토그래피 등에 의해 분리 및 정제하는 것을 포함하는 상기 다당류의 제조 방법 및 상기 다당류를 활성성분으로 하는 조성물에 관한 것이다.

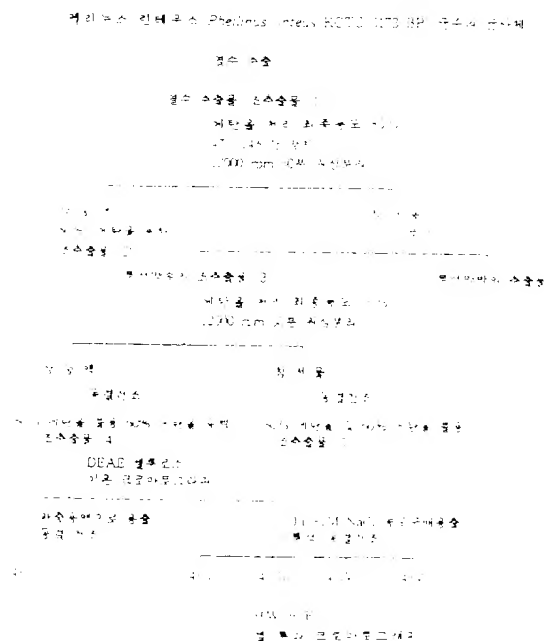
1991 1992 1993 1994 1995

1. 펠리누스 린테우스 (Phellinus lineatus) KCTC 0173BP 균주의 균사체로부터 분리정제된 항암 편역활성 다당류.
2. 제1항에 있어서, 분자량이 16,000 이하인 항암 편역활성 다당류.
3. 제1항에 있어서, 분자량이 153,000 이하인 항암 편역활성 다당류.
4. 제1항에 있어서, 상기 다당류의 당성분이 5 내지 55%의 글루코즈, 5 내지 30%의 갈락토스, 10 내지 50%의 만노스, 1 내지 25%의 사이토스 및 5 내지 25%의 아라비노스 포함되어 있는 항암 편역활성 다당류.
5. 펠리누스 린테우스 KCTC 0173BP 균주의 균사체를 염수 추출하고, 염수 추출물을 최종 에탄올 농도가 50%가 되도록 여탄층으로 처리한 후 원심분리하여 침전물을 얻고, 침전물을 투석하고 투석물을 최종 에탄올 농도가 50%가 되도록 여탄층으로 처리한 후 원심분리하여 상층액을 얻고, 상층액을 음이온 교환 크로마토그래피로 정제하는 것을 포함하는, 항암 편역활성 다당류의 제조방법.
6. 제5항에 있어서, 상기 염수 추출시 균사체를 실온 내지 100°C의 증류수 중에서 3 내지 24시간 동안 추출하는 방법.
7. 제1항 내지 제4항 중 어느 한 항의 항암 편역활성 다당류를 유효성분으로 포함하는 약학적 조성물.
8. 참고사항: 최초출원 내용에 의하여 공개하는 것임.

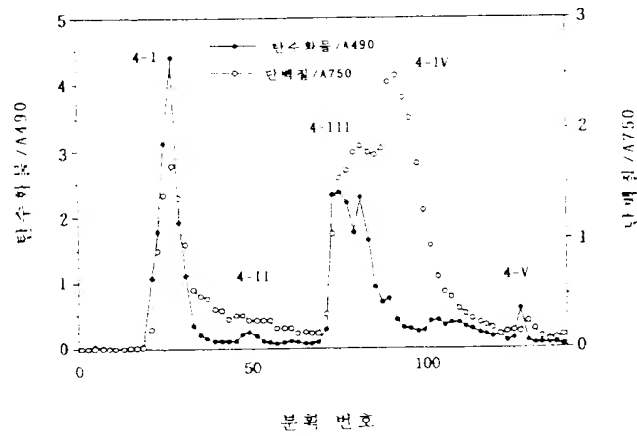
100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098

제1도는 염화나트륨 수용액으로 2회 세정한 상온 평일활성 효소분획을 정제하는 과정을 고식화한 것이고, 제2도는 소스종류 4의 DEAE-셀룰로오스 크로마토그래피로 결과를 나타낸 것이고, 제3도는 활성물질 4-III의 겔 투과 크로마토그래피 결과를 나타낸 것이다.

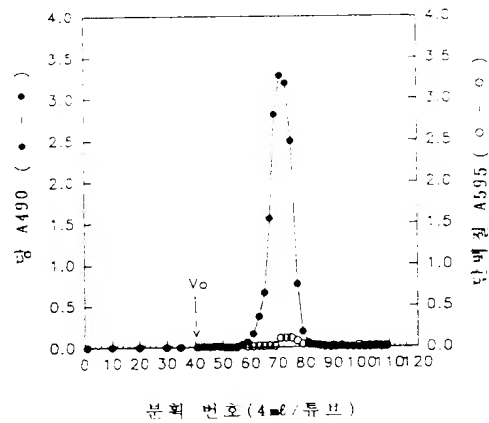
제 1 도



제 2 도



제 3 도



PTO 2002-1936

Korea, Laid-open
97-15743

ANTI-CANCER IMMUNOLOGICALLY ACTIVATED POLYSACCHARIDE
SEPARATED FROM PHELLINUS LINTEUS AND ITS MANUFACTURING METHOD
[Phellinus linteus Ro Buteo Bunridoin Hangan Myeonyeok
Whalsung Tadangryu Mip Iui Jaezo Bangbeop]

Ik-Dong Yu, Kyung-Shik Song, Jae-Hoon Lee, Soc-Muk Cho,
Hwan-Muk Kim, Kyung-Soo Koh, and Man-Woo Han

UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. March, 2002

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Inventors : Ik-Dong Yu, Kyung-Shik Song, Jae-Hoon Lee, Soo-Muk Cho, Hwan-Muk Kim, Kyung-Soo Koh, and Man-Woo Han

Applicants : Korea Institute of Science and Technology
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IPC : C 12 P 19/00

Application date : September 6, 1995

Publication date : April 28, 1997

Foreign Language Title : Phellinus linteus Ro Buteo Bunridoin
Hangam Myeonyeok Whalsung Tadangryu
Mip Iui Jaezo Bangbeop

English Title : ANTI-CANCER IMMUNOLOGICALLY ACTIVATED
POLYSACCHARIDE SEPARATED FROM
PHELLINUS LINTEUS AND ITS
MANUFACTURING METHOD

Abstract

/1*

The present invention pertains to an anti-cancer immunologically activated polysaccharide with a molecular weight of 9,000-16,000 or 153,000 dalton separated from a mycelium of *Phellinus linteus* KCTC 0173BP, a method for manufacturing the above-mentioned polysaccharide including a hydrothermal extraction from the mycelium of the above-mentioned strain, ethanol extraction, and separation and purification by anion exchange chromatography, etc., and a pharmaceutical composition containing the above-mentioned polysaccharide as an active ingredient.

*Numbers in the margin indicate pagination in the foreign text.

1. Title of the Invention: ANTI-CANCER IMMUNOLOGICALLY ACTIVATED
POLYSACCHARIDE SEPARATED FROM
PHELLINUS LINTEUS AND ITS
MANUFACTURING METHOD

2. Claims

1. An anti-cancer immunologically activated polysaccharide characterized by being separated and purified from a mycelium of Phellinus linteus KCTC 0173BP strain.

2. The anti-cancer immunologically activated polysaccharide of Claim 1 characterized by the fact that the molecular weight is 9,000-16,000 dalton.

3. The anti-cancer immunologically activated polysaccharide of Claim 1 characterized by the fact that the molecular weight is 153,000 dalton.

4. The anti-cancer immunologically activated polysaccharide of Claim 1 characterized by the fact that the sugar component of the above-mentioned polysaccharide is composed of 5-55 mol% glucose, 5-30 mol% galactose, 10-50 mol% mannose, 1-25 mol% gyrose, and 5-25 mol% arabinose.

5. A method for manufacturing an anti-cancer immunologically activated polysaccharide characterized by that a mycelium of Phellinus linteus KCTC 0173BP strain is hydrothermally extracted; the

hydrothermal extract is treated with ethanol so that the final ethanol concentration may be 80% and is then centrifuged, so that a precipitate is obtained; the precipitate is dialyzed; the dialysate is treated with ethanol so that the final ethanol concentration may be 60% and is then centrifuged, so that a supernatant is obtained; and the supernatant is purified by an anion exchange chromatography.

6. The method of Claim 5 characterized by the fact that in the above-mentioned hydrothermal extraction, the mycelium is extracted for 3-24 h in distilled water at room temperature to 100°C.

7. A pharmaceutical composition, characterized by including the anti-cancer immunologically activated polysaccharide of any of Claims 1-4 as an active ingredient.

* Remarks: Initially disclosed according to the initial filing.

3. Brief description of the figures

Figure 1 is a diagram showing a process for purifying the anti-cancer immunologically activated polysaccharide from *Phellinus linteus* strain. Figure 2 shows the results of a DEAE-cellulose chromatography of a coarse extract (4). Figure 3 shows the results of a gel permeation chromatography of an activator 4-III.

8. Coarse extract (3) of dialysis membrane inside
9. Extract of dialysis membrane outside
10. Ethanol treatment (final concentration 60%)
Centrifuging at 12,000 rpm for 30 min
11. Supernatant
12. Freeze-drying
13. Precipitate
14. Freeze-drying
15. 80% ethanol undissolved, 60% ethanol dissolved
Coarse extract (4)
16. 80% ethanol and 60% ethanol undissolved
Coarse extract (5)
17. DEAE cellulose
Ion chromatography
18. Elution with a buffer solution
Freeze-drying
19. 0.1-1 M NaCl concentration gradient elution
Dialysis, freeze-drying
20. HW 65F
Gel permeation chromatography

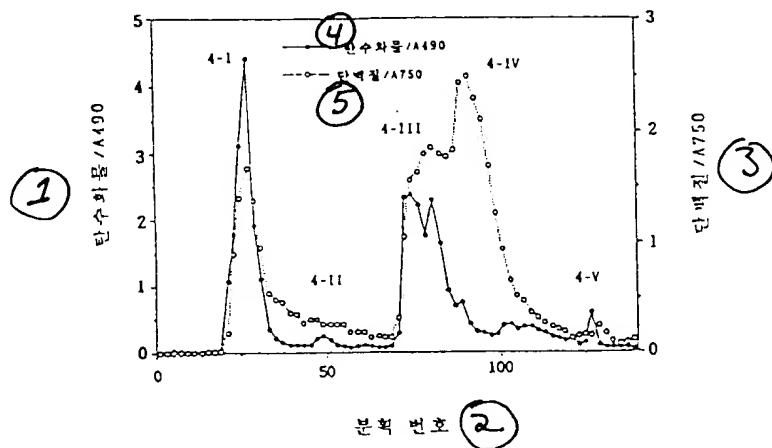


Figure 2:

1. Carbohydrate/A490
2. Fraction No.
3. Protein/A750
4. Carbohydrate/A490
5. Protein/A750

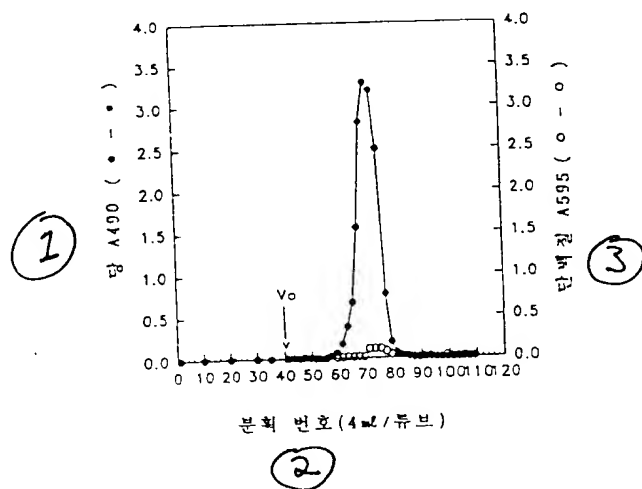


Figure 3:

1. Sugar A490
2. Fraction No. (4 ml/tube)
3. Protein A595